UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/077,696	02/13/2002	Nilesh Shah	20949P-000200US	1454

48102   7590   11/28/2005

NETWORK APPLIANCE/BLAKELY
12400 WILSHIRE BLVD
SEVENTH FLOOR
LOS ANGELES, CA 90025-1030

EXAMINER
BURGESS, BARBARA N

ART UNIT	PAPER NUMBER
2157	

DATE MAILED: 11/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

		Application No.	Applicant(s)
		10/077,696	SHAH ET AL.
Office Action Summary		Examiner	Art Unit	
		Barbara N. Burgess	2157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>07 October 2005</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-19</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-19</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date <u>9-27-05</u>.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to After-Final amendment filed October 7, 2005.

Examiner has withdrawn the finality of claims 1-19. These claims are presented for

further examination.

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 1-13, 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Blumenau et al. (hereinafter "Blum", US Patent No. 6,421,711 B1) in view of Bass

et al. (hereinafter "Bass", US Patent 6,671,280 B1).

As per claim 1, Blum discloses a storage server in a storage area network

connecting a plurality of host computers and a plurality of storage devices, said storage

server comprising:

* A plurality of storage processors associated with said plurality of host computers and

  said plurality of storage devices, wherein said plurality of storage processors

  receives a plurality of command packets and a plurality of data packets (column 6,

  lines 65-67, column 7, lines 1-9, column 9, lines 36-56);

- A switching circuit connecting said plurality of storage processors (column 2, lines 50-55, column 10, lines 1-15; Virtual ports are connected to the physical ports by a switch and used for routing requests from the physical port to the virtual ports);

- A micro engine, wherein said micro engine is configured to execute processing comprising:

    configuring a path between a first storage processor and a second storage processor of said plurality of storage processors, via said switching circuit, in accordance with a command packet of said plurality of command packets (column 12, lines 12-30, column 13, lines 45-57).

Blum does not explicitly disclose a micro engine configured to execute processing comprising:

    routing a data packet of said plurality of data packets over said path, prior to completely receiving said data packet, between said first storage processor and said second storage processor via said switching circuit.

However, in an analogous art, Bass discloses allowing several media data ports to receive frames or cells. Such frames are "cut-through" on the upside of the processor meaning the beginning of a frame can be delivered before the end of the frame has been received (column 5, lines 15-30).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Bass's routing data packet prior to completely receiving data packet between first and second processors in Blum's network in order to minimize upside memory and overhead processing.

As per claim 2, Blum discloses the storage server of claim 1, wherein said first storage processor includes a lookup table that associates one or more virtual logical unit numbers (VLUNs) with one or more physical logical unit numbers (PLUNs), wherein said one or more PLUNs are associated with said plurality of storage devices, and wherein said one or more VLUNs are visualizations of said one or more PLUNS (column 25, lines 32-50, 54-67).

As per claim 3, Blum discloses the storage server of claim 1, wherein said micro engine is a component of one of said plurality of storage processors (column 17, lines 9-35).

As per claim 4, Blum discloses the storage server of claim 1, further comprising:

- A plurality of micro engines, wherein said plurality of micro engines are components of said plurality of storage processors (column 17, lines 9-35).

As per claim 5, Blum discloses the storage server of claim 1, wherein said plurality of data packets are received from one of said plurality of host computers (column 7, lines 21-25).

As per claim 6, Blum discloses the storage server of claim 1, wherein said plurality of data packets are received from one of said plurality of storage devices (column 7, lines 28-35).

As per claim 7, Bum discloses the storage server of claim 1, wherein said plurality of data packets are received from more than one of said plurality of storage devices (column 7, lines 25-40).

As per claim 8, Blum discloses the storage server of claim 1, wherein said plurality of data packets are routed to one of said plurality of host computers (column 8, lines 63-67).

As per claim 9, Blum discloses the storage server of claim 1, wherein said plurality of data packets are routed to one of said plurality of storage devices (column 7, lines 28-35).

As per claim 10, Watan discloses the storage server of claim 1, wherein said plurality of data packets are routed to more than one of said plurality of storage devices (column 3, lines 63-67, column 4, lines 25-35, column 5, lines 63-67, column 6, lines 3-8).

As per claim 11, Blum discloses the storage server of claim 1, wherein said micro

engine is further configured to execute processing comprising:

- Configuring a plurality of paths in accordance with said command packet (column

    13, lines 40-57).

As per claim 12, Blum discloses the storage server of claim 1, wherein said first

storage processor receives said command packet from one of said plurality of host

computers (column 9, lines 43-55).

As per claim 13, Blum discloses the storage server of claim 1, wherein said first

storage processor receives said command packet from one of said plurality of storage

processors (column 10, lines 34-40).

As per claim 15, Blum discloses the storage server of claim 1, wherein said first

storage processor passes a handle to said second storage processor (column 10, lines

35-45).

As per claim 16, Blum discloses the storage server of claim 1, wherein said first

storage processor and said second storage processor are a single storage processor

(column 7, lines 23-27).

As per claim 17, Blum discloses the storage server of claim 1, wherein said micro

engine routes said data packet according to a routing tag therein (column 13, lines 40-

50)

As per claim 18, Blum discloses the storage server of claim 1, further comprising:

- A virtual server controller configured to program, via a configuration command, a

  lookup table in one of said plurality of storage processors, wherein said lookup table

  associates one or more virtual logical unit numbers (VLUNs) with one or more

  physical logical unit numbers (PLUNs) (column 25, lines 32-50, 54-67).

As per claim 19, Blum discloses a method of routing data in a storage area network

connecting a storage server between a plurality of host computers and a plurality of

storage devices, said storage server having a plurality of storage processors and a

switching circuit, said plurality of storage processors receiving a plurality of command

packets and a plurality of data packets, said method comprising:

- Configuring a path between a first storage processor and a second storage

  processor of said plurality of storage processors, via said switching circuit, in

  accordance with a command packet of said plurality of command packets (column

  12, lines 12-30, column 13, lines 45-57).

Blum does not explicitly disclose:

- Routing a data packet of said plurality of data packets over said path, prior to completely receiving said data packet, between said first storage processor and said second storage processor via said switching circuit.

However, in an analogous art, Bass discloses allowing several media data ports to receive frames or cells. Such frames are "cut-through" on the upside of the processor meaning the beginning of a frame can be delivered before the end of the frame has been received (column 5, lines 15-30).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Bass's routing data packet prior to completely receiving data packet between first and second processors in Blum's network in order to minimize upside memory and overhead processing.

3.   Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blumenau et al. (hereinafter "Blum", US Patent No. 6,421,711 B1) in view of Bass et al. (hereinafter "Bass", US Patent 6,671,280 B1) and in further view of Karpoff et al. (hereinafter "Karpoff", US Patent Publication 2002/0112113 A1).

As per claim 14, Blum, in view of Bass, discloses the storage server of claim 1. Blum, in view of Bass, does not explicitly discloses wherein said micro engine uses a command handle in said command packet to perform a tree search to configure said path.

However, in an analogous art, Karpoff discloses a mapping structure for medium sized disk images called a B-Tree structure.

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Karpoff's tree search in Blum's storage server in order to maintain data allowing translation of virtual block addresses to real block addresses.

Response to Arguments

4.   Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent 6,640,278 B1

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barbara N. Burgess whose telephone number is (571) 272-3996. The examiner can normally be reached on M-F (8:00am-4:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571) 272-4001. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Barbara N Burgess
Examiner
Art Unit 2157

November 19, 2005
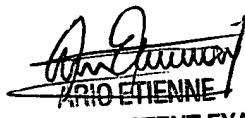
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